

## **Low Maintenance Alternatives to Conventional Grass Lawns: Ecolawns revisited**

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About 1985 I began looking at alternatives to pure grass lawns. My goal was to find a mowable ground cover that looked somewhat like grass lawns but required less input than regular lawns. Specifically, I wanted a lawn that required less mowing, less irrigation, and less fertilizer, and was competitive with common weeds that invade under-fertilized, drought stressed grass lawns. There was little published literature dealing with this subject. The few papers I did find generally looked at reduced irrigation on drought tolerant species of turfgrass. A few discussed low growing broadleaf plants such as common white yarrow, *Achillea millifolium*. In New Mexico, Arden Baltensparger reported on the use of Fresa strawberry clover, *Trifolium fragiferum* as a lawn. Various publications, centered on organic gardening principles, shared anecdotal testimonials regarding herbal lawns. My own observations of lawns receiving low inputs told me that most were a mix of annual and perennial grasses and a predictable list of drought and mowing tolerant broadleaf weeds.

At this point I concluded that a sustainable low input lawn should include low growing drought resistant broadleaf plants and relatively non-competitive grasses. The idea was to create a planting where all the components served a purpose and together all components would contribute to a persistent balanced stand. The initial list of plants was fairly long but since only commercially available components made the final list, the actual list of components was fairly short. Once mixes were assembled and planted in the field several things became apparent quickly, and as time passed I was able to see trends that weren't apparent initially. Below, I have prepared brief summaries regarding which components worked and what they contributed to the mixes. Keep in mind that all tests were conducted in Corvallis, OR where summer temperatures run about 5 to 10 F higher than the Puget Sound area. Rainfall in Corvallis averages approximately 42" per year. Three years out of five the months of June through September receive little or no rain. I can only guess how the components will perform in other climates

### **Grasses**

**The role for grass in these mixes is to provide turf cover in winter and early spring when the herbaceous perennial broadleaf plants are at their weakest**

Initially we planted a wide range of cool season grasses. The least competitive grasses turned out to be perennial ryegrass and Kentucky bluegrass. This was predictable because both grasses require high levels of nitrogen to produce dense competitive turf. Since no fertilizer was applied their growth was weak. Colonial bentgrass was very competitive even without fertilizer and quickly caused broadleaf components to segregate into patches, which ruined the appearance of the lawn. The fine fescues were also highly competitive and caused similar problems. Tall fescue was intermediate in competitiveness but was overly vigorous in spring which made mowing more difficult.

**For Willamette Valley conditions the most compatible grasses appear to be perennial ryegrass and Kentucky bluegrass. Commercially, the most widely used grass has been perennial ryegrass.**

### **Broadleaf Components**

Each broadleaf component has a different purpose but **in general the broadleaf plants are intended to provide cover during periods of drought when the grasses normally go dormant.** The following descriptions point out attributes of the most commonly used plants.

**Common Yarrow, *Achillea millifolium*,** is a rhizomatous perennial commonly used in gardens for its ornamental flowers. When mowed regularly it produces a dense dark green ground cover with excellent drought tolerance. It stands out in summer and can nearly obscure grass that has gone dormant. Yarrow tends to die back to the crown during winter. **From a distance yarrow looks much like grass due to its upright feathery leaves. It has surprisingly good wear tolerance and will stay green longer under prolonged drought than all other components.**

**Clovers, *Trifolium* species,** were included because they are common in low fertility lawns, and because they have excellent drought tolerance. Most clovers are stoloniferous which allows them to spread vegetatively. Many have fairly deep tap roots that partially account for their excellent drought tolerance. Fresa Strawberry clover is the best clover I have looked at. It provides dense cover, flowers uniformly in summer and has persisted well in our clay soils and slightly acidic soils. Unfortunately, it is not available in the commercial trade due apparently to seed production difficulties.

The most commonly planted clovers have been White clover and common varieties of Strawberry clover. While these serve the purpose adequately most are overly vigorous in the early years and tend to disappear over time or segregate into clumps. Clover is at its best in summer. All clovers flower in summer and attract bees, which is a potential problem. Mixes are available that do not contain clover but for long term persistence of the stand, I feel clover is an important component. Without clover, mixes may require annual fertilizer applications to remain competitive.

**English daisy, *Bellis Perennis*,** is a common lawn weed in much of the western Oregon-Washington region. Wild types appear to spread via rhizomes and from seed. They are at their best spring through early summer, struggling a bit during hot or dry summers. Commercial types often come from the flower trade and are less persistent than the wild types. Commercial types also have a wider range of flower colors and produce spectacular flower displays from late March to mid June. The flowers are the primary reason for including English daisy in these mixes. When not in bloom, the daisies tend to clash with the other components due to their light green color and clumpy growth pattern. My experience is that daisies tend to look good for 3 to 5 years and then slowly disappear from the stand.

## Other Components

I have looked at numerous other components to use in these mixes. Sweet alyssum, *Lobularia maritima*, is often included in commercial mixes. Its purpose is to give summer flowers in spring planted lawns. It dies out during the first winter and in my plots has not successfully reseeded itself. Baby Blue eyes, *Nemophila menziesii*, is also included in many commercial mixes. It behaves as a winter annual blooming in the spring and summer after the first winter. When it is done flowering it dies and in my plots has not reestablished itself from seed.

Early on in our trials we tried Roman Chamomile, *Chamaemelum nobile*, which is similar in appearance to common yarrow. Chamomile is not a strong competitor but while it lasts it lends a distinct pineapple smell whenever the lawn is mowed. Chamomile has not persisted well in trials at OSU.

## Do Low Input Lawns Live up to Their Billing?

Once these lawns are installed, owners either love or hate them. Most landscape contractors I have talked to like them. As one fellow told me, he makes money installing them and a couple of years later makes money replacing them with conventional grass lawns. The point is that **low input lawns are not intended to replace grass lawns. They are intended to provide an alternative for people who don't want or can't maintain a conventional lawn.**

What they do well is provide a functional groundcover with reduced effort on the part of lawn owners. In our trials conducted on silty clay loam soil of medium fertility, **no fertilizer** has been applied over 5 to 10 years. **Plots irrigated an average of three times per year have stayed green and fairly dense all summer.** No herbicides have been needed to control invading weeds.

Our basic regime for **maintenance involves mowing regularly at 3-week intervals at 2" with clippings returned.** This works at most times because low nitrogen levels in the soil general limit growth. **I plan for 4 irrigations per year at 2" of water per application.** In 1995 & 1996 we only irrigated twice each year. The key is to let the lawn take care of itself which means to let the grass go dormant between irrigations and allow the yarrow and clover dominate the stand during summer. I have learned that weekly irrigation will result in more herbage production than a conventional grass lawn. **Weeds have not been a problem** but because all common components are resistant to normal 2,4-D mixtures, most problem weeds can be removed selectively.

**These lawns do look different! They are not intended to produce perfect green lawns.** People who understand this seem to like their lawns. Folks who heard this is the latest miracle and try it without researching it first, generally are disappointed and replace their lawn in one to two years. People who want green lawns that don't grow and never need water should have their heads examined. They will never be happy with this lawn or any other lawn. I generally encourage them to buy a condominium.

## Some sources:

Protime Lawn Seeds 503-239-7518 ask for Fleur de Lawn

Nichols Garden Nursery 541-928-9280 ask for the Dryland Mix